

Prosiect Maen Hir

Solar a Storio Ynni



Preliminary Environmental Information Report Volume I, Chapter 9: Transport and Access

Prosiect Maen Hir - September 2024

EN010156



Table of Contents

9	Transport and Access	4
9.1	Introduction	4
9.2	Baseline Conditions	4
9.3	Assessment Methodology	8
9.4	Embedded Mitigation	23
9.5	Preliminary Assessment of Likely Significant Effects	26
9.6	Additional Mitigation	31
9.7	Residual Effects	31
9.8	Effect Interactions	31
9.9	References.....	32

List of Tables

Table 9-1	Fear and Intimidation - Degree of Hazard Scoring.....	19
Table 9-2	Levels of Fear and Intimidation.....	19
Table 9-3	Levels of Fear and Intimidation.....	19
Table 9-4	Significance Criteria.....	20
Table 9-5	Significance of Effect Matrix.....	21

List of Figures

- Figure 9-1 Transport and Access Study Area
- Figure 9-2 Construction Vehicle Routing and Constraints
- Figure 9-3 Public Rights of Way and Cycle Route Overview

Appendices

- Appendix 9-1 Policy and Guidance Review
- Appendix 9-2 Project Engagement and Consultation
- Appendix 9-3 Technical Note – Construction Traffic Trip Generation and Distribution
- Appendix 9-4 Baseline Traffic Flows
- Appendix 9-5 Traffic Impact Assessment
- Appendix 9-6 Summary of likely significant environmental effects
- Appendix 9-7 Outline Construction Traffic Management Plan

9 Transport and Access

9.1 Introduction

9.1.1 This chapter assesses the potential likely significant environmental effects of the Project on Transport and Access during the construction and decommissioning phases. It was agreed with the Planning Inspectorate (PINS) that the transport-related effects associated with the operational phase are unlikely to result in significant impacts and as such, these have been scoped out of the assessment.

9.1.2 The potential likely significant environmental effects of the Project have been considered on both motorised and non-motorised users (NMU).

9.1.3 The content and assessment methodology contained within this chapter has been informed by the Scoping Opinion from PINS dated 19 December 2023, as well as Pre-Application Highways Advice from the Isle of Anglesey County Council (IoACC), dated 29 September 2023.

9.1.4 This chapter of the PEIR is supported by the following Appendices:

- Appendix 9-1: Policy and Guidance Review;
- Appendix 9-2: Project Engagement and Consultation;
- Appendix 9-3: Technical Note - Construction Traffic Trip Generation and Distribution;
- Appendix 9-4: Baseline Traffic Flows;
- Appendix 9-5: Traffic Impact and Assessment; and
- Appendix 9-6: Summary of likely significant environmental effects.

9.1.5 This chapter of the PEIR is also supported by the following Figures:

- Figure 9-1: Transport and Access Study Area
- Figure 9-2: Construction Vehicle Routing and Constraints
- Figure 9-3: Public Rights of Way and Cycle Route Overview

9.2 Baseline Conditions

Transport and Access Study Area

9.2.1 The Transport and Access Study Area (hereafter the 'Study Area') has been defined as the routes from the Strategic Road Network (SRN) via the Local Road Network (LRN) required to facilitate traffic movements associated with the

construction and decommissioning phases of the Project, as well as any improvements or changes required to facilitate construction traffic access.

9.2.2 The Study Area is illustrated in Figure 9-1 and comprises the 38 links which have been identified based on the likely routing of vehicles to access the Project (discussed in more detail below), the extent of which has been agreed with IoACC during scoping discussions outlined within Appendix 9-2.

9.2.3 Whilst not all these links will be utilised by the construction vehicles or staff associated with the Project, they have been incorporated into the Study Area to provide a robust assessment and to allow for comparison and validation to ensure that the data collected for the other links is representative.

Highway Network

9.2.4 The majority of the equipment required to implement the Project is likely to be imported into the UK from abroad and as such will most likely arrive at an appropriately located port(s) as set out in Chapter 5: Project Description.

9.2.5 It is expected that the majority of deliveries will travel into Anglesey from the east via the Britannia Bridge, with a small number of abnormal indivisible loads (AILs) also travelling from the Holyhead Port to the west. On that basis, an initial feasibility exercise has been undertaken to determine potential access routes along the LRN to the Project from the SRN (see Figure 9-1).

9.2.6 In the south, the Project is connected to the SRN via the B5112 which links to the A55. In the north the Project is connected to the SRN via the B5111 and an unclassified road, which links to the A5025.

9.2.7 The A5025 is a strategic coastal highway that acts as the primary ring road around the island. The A5025 connects with the A55 and A5 trunk roads at the Britannia Bridge over the Menai Strait. The A55 is a major road that runs along the north coast of Wales, providing links between Holyhead, Bangor, Conwy, and Chester. It also connects to the M53 and M56 motorways, continuing onto Manchester and Liverpool.

- 9.2.8 Due to the rural nature of the area surrounding the A5025 in proximity to the Project, a number of the local roads do not have formal road names or route designations, as well as having a lack of formal restrictions.
- 9.2.9 Access to the Project during the construction phase for Heavy Goods Vehicles (HGVs) has been identified via two primary routes, as set out below:
- Route 1 - Northern Route: Access to / from the north, via Britannia Bridge - A5025 - B5111 - Unclassified Road towards Penbol - Rhosgoch
 - Route 2 - Southern Route: Access to / from the south, via Britannia Bridge - A55 - Junction 6 of the A5 - Holyhead Road - B4422 - B5109 - Lon Sardis - NCR5
- 9.2.10 Both Route 1 and Route 2 from Britannia Bridge in the east may be needed for AIL deliveries.
- 9.2.11 It is noted that the routing strategy has been informed by feedback received from IoACC during consultation discussions, which are detailed at Appendix 9-2.
- 9.2.12 It is assumed that staff and other Light Goods Vehicles (LGVs) would not be restricted to the use of these routes and would instead route via the shortest practicable route, based on the likely origin / destination of the trip. Further details on the assumptions and routing for staff and LGVs is included at Appendix 9-3.
- 9.2.13 As well as the routes identified above, two additional routes have been identified for AILs, both of which would originate from the Holyhead Port, west of the PEIR Boundary. These additional AIL routes are set out below:
- AIL Northern Route: via the A55 - A5153 - A5025 - Pig Y Rhos
 - AIL Southern Route: via the A55 - Junction 5 - B5112 - B5111
- 9.2.14 A plan summarising the extent of the HGV and AIL access routes, as well as presenting the surrounding constraints regarding weight and height restrictions within the vicinity of the Project, is provided within Figure 9-2.
- 9.2.15 Personal injury collision data has been requested from IoACC for all of the proposed access routes to determine whether there are any existing collision trends or highway safety issues on the road network that could be exacerbated by construction of the Project that would impact both motorised and NMUs. This

will be detailed within the future Transport Assessment (TA) that will accompany the ES and DCO Application.

- 9.2.16 To further inform the suitability of the identified routes, Ordnance Survey (OS) 'Mastermap' data has been obtained and topographical survey data has been collected to refine the swept path analysis of the construction vehicle access routes for the anticipated vehicles. Further details on this analysis, including an overview of the different types of vehicles anticipated, will be provided within the future TA and ES that will support the DCO Application.

Walking, Cycling and Horse-riding Network

- 9.2.17 Due to the rural nature of the area, there is a limited provision of footways alongside the carriageways of the roads in the vicinity of the PEIR Boundary. However, there are footways on some sections of the roads within the Study Area where they pass through residential settlements such as Llannerch-y-medd, Rhosgoch and Capel Coch. A plan illustrating the surrounding Public Rights of Way (PRoW) and cycle network is provided in Figure 9-3.
- 9.2.18 There are a number of designated cycle routes within the vicinity of the Study Area and within the wider area of Anglesey, including:
- Lon Las Cymru NCN 8: National cycling route for 400km starting in Holyhead through Anglesey, connecting with NCN 5 route. NCN 8 lies approximately 16km south of the Project.
 - North Wales Coast Cycle Route NCN 5: National cycling route for 168km in total, of which 54km is on Anglesey passing sites like Llynonn Mill and crossing Menai Bridge. NCN 5 passes along the eastern and northern edge of Maen Hir South and through Llannerch-y-medd.
 - NCN 566 (including Copper Trail and Lon Las Cefni): 54km circular county trail on northern Anglesey on quiet lanes. NCN 566 passes along the western edge of Maen Hir Central.
- 9.2.19 There are a number of PRoWs that pass through the Project, as described in Chapter 6 and presented within Figure 6-5 of the PEIR.

9.2.20 It is noted that given the wide extent of the Study Area there are a number of PRoW in close proximity to the access routes, though there is unlikely to be much interaction between construction vehicles and PRoW users as the construction routes do not pass directly over the PRoW. The implications of any interactions between construction vehicles and PRoW users will be considered within the relevant assessment of potential likely significant environmental effects later within this chapter and within the ES that will accompany the DCO submission.

9.2.21 With respect to horse-riders, it is anticipated that these users would utilise the existing PRoW and bridleway network, as well as some of the local roads within the vicinity of the Study Area.

9.3 Assessment Methodology

Assessment Scope

Scoped In

9.3.1 Traffic generated during the construction and decommissioning of the Project will be assessed. The effect of the decommissioning phase is anticipated to be equivalent to or less than the construction phase and therefore it is considered that the construction phase presents a robust, worst-case assessment.

9.3.2 The effects to be assessed during the construction phase of the Project are as follows:

- Severance;
- Driver Delay;
- Pedestrian Delay;
- Non-motorised User Amenity;
- Fear and Intimidation; and
- Road Safety.

Scoped Out

Alternative Modes of Construction Access

9.3.3 There are no viable alternative modes of transport to the Project for construction materials, such as rail access. As such, only access by road for construction vehicles is considered within the assessment. This approach was agreed with

PINS within the Scoping Opinion, with further details provided within Appendix 3-1.

- 9.3.4 It was also agreed that the assessment of shipments to Holyhead or any other relevant port within the United Kingdom was scoped out of the assessment.

Operational Phase

- 9.3.5 As outlined above, it is considered that the potential for likely significant environmental effects during the operational phase of the Project with respect to Transport and Access would be negligible and therefore not significant in EIA terms. A detailed assessment of the operational phase of the Project is therefore scoped out of the EIA as agreed with PINS.

- 9.3.6 It is assumed that any operational traffic flows would fall within the thresholds identified in the Environmental Assessment of Traffic and Movement (EATM, 2023) Guidance produced by the Institute of Environmental Management and Assessment (hereafter referred to as the 'IEMA EATM Guidance', Ref 9-1), which sets out daily thresholds of less than a 30% change in total vehicle flows or 10% change in daily HGV flows.

- 9.3.7 For the vast majority of the links within the Study Area, it is not considered that the vehicular trips associated with operational activity would exceed 10% the number of daily HGVs, though there may be instances where the baseline flows on a link are low and as a result any additional HGV trips result in a larger percentage increase, though the absolute change is low. However in these instances, links of this nature are considered to be of low sensitivity due to the low levels of baseline activity, where the uplift is unlikely to lead to any likely significant environmental effects.

- 9.3.8 On that basis the operational flows would not be significant in EIA terms and not require further assessment in Transport and Access terms. Further details as to how the operational flows will be managed will be provided in the ES.

Hazardous and Large Loads

- 9.3.9 With respect to Hazardous Loads (identified as any chemical or radioactive substances that may be transported), none are expected to be needed across the Project at this stage. In any case, analysis of the road network within the Study

Area indicates that there are no particular features, such as significant vertical drops immediately beyond the carriageway, which would suggest that the transfer of materials poses a particular risk beyond that which would be expected generally on the highway network.

9.3.10 The requirements for Large or Abnormal Loads (identified as any vehicle that exceeds 2.9m in width, 44t in weight or 18.65m rigid / 25.9m overall length) will be managed by National Highways, the local highway authorities that the delivery would pass through and the police through the Electronic Service Delivery for Abnormal Loads (ESDAL) system, meaning there will be a limited effect on the LRN or SRN.

9.3.11 No likely significant effects in EIA terms are anticipated and therefore Hazardous and Large Loads is scoped out of the assessment.

Capacity Assessment

9.3.12 For the purposes of the PEIR, the assessment considers total changes in traffic flow, rather than local capacity assessments, in accordance with the IEMA EATM Guidance.

9.3.13 It is not considered that the Project would generate sufficient demand within the typical network peak one-hour periods (e.g. 08:00-09:00 and 17:00-18:00) to warrant the need for local capacity assessments.

9.3.14 To validate this assumption, reference is made to the (now superseded) Department for Transport (DfT) 'Guidance on Transport Assessment' (2007, Ref 9-2), which sets out a threshold of 30 two-way vehicle trips in any one-hour peak period to warrant the need for further assessment.

9.3.15 It is noted that the majority of the LGV and HGV trips associated with the Project will take place outside the AM and PM one-hour peaks and would therefore not meet this threshold, meaning no localised capacity assessments are considered to be required. Further details on this are provided within the assessment of Driver Delay later within this chapter.

Legislation, Policy and Guidance

- 9.3.16 A review of the Legislation, Policy and Guidance that is relevant to the Transport and Access assessment of the project is included at Appendix 9-1. The review demonstrates that the Project has been developed in accordance with the requirements identified in Appendix 9-1.
- 9.3.17 The assessment methodology has been informed by the IEMA EATM Guidance.

Assessment Process

- 9.3.18 The PEIR methodology, and the methodology that will be utilised for the assessment in the ES and stages followed, can be summarised as follows:
- Initial consultation with the relevant highway authorities and emergency services (National Highways, IoACC, North Wales Police and North and Mid Wales Trunk Road Agent).
 - Procure and process baseline traffic data, arranging additional surveys where necessary in collaboration with key stakeholders and consultees.
 - Undertake vehicle route feasibility assessments for construction vehicles equipment and staff, including detailed observations of each of the proposed route options and identifying any sensitive receptors or constraints along the length of the routes. The main route assessments will primarily comprise the LRN from the SRN to the Site, however, the impact on the SRN has also been assessed where relevant.
 - Application of Department for Transport ('DfT') Trip End Model Presentation Program (TEMPRO) Growth Factors (Ref 9-3) in order to develop and assess future construction years, with an emphasis placed on assessing the peak year, the details of which will be set out within the ES.
 - In consultation with the relevant stakeholders, route options have been explored and developed further to determine the feasibility of each route and whether they are acceptable or require further refinement.
 - An initial assessment of traffic generation from the Project on the LRN, including routes between the different areas of the Site, undertaken alongside an initial assessment of the likely significant environmental effects.

- Refinement of assessment to reflect any changes in the design of the Project or consultation feedback, followed by an additional assessment of the effects. At this stage, the requirement for additional surveys or localised assessments, including junction capacity modelling, is determined.
- Following the outcomes of the additional assessments to identify the residual effects, there will be ongoing consultation with the key stakeholders, consultees and residents to discuss the findings.
- Initial mitigation measures have been identified, in order to mitigate any residual impacts or concerns raised during consultation. Further mitigation measures will be considered and refined as part of the ES.
- The assessment will be further refined to reflect this consultation feedback, with appropriate updates made to the assessment, as well as assessment of the cumulative effects of other developments within the area.

9.3.19 The assessment of Transport and Access will be updated and refined for the ES once further details on the Project are developed and there is further engagement with key stakeholders, including IoACC.

9.3.20 This PEIR assessment has been undertaken primarily through a desktop-based assessment, supported by a series of site visits utilised to validate the findings of the vehicle routing strategy.

9.3.21 The ES will describe and assess the likely significant effects associated with any improvements or changes to the network which are required to facilitate construction and decommissioning phases of the Project once these details are available. The assessment in the ES will consider potential effects from any permanent improvements.

9.3.22 The approach to the sensitivity of receptors, magnitude of impacts and the significance of effect in relation to Transport and Access for the PEIR assessment is described from Paragraph 9.3.30 onwards.

9.3.23 The PEIR assessment has been undertaken using a robust interpretation of the likely number of construction vehicles and construction staff that will be required.

The effect of the decommissioning phase is anticipated to be equivalent to or less than the construction phase and therefore it is considered that the construction phase presents a robust, worst-case assessment for PEIR.

- 9.3.24 To provide a robust worst-case assessment of the likely significant environmental effects, it is assumed that the Project will be constructed in one phase.
- 9.3.25 Traffic surveys were undertaken in October 2023 and June 2024 on the 38 identified links to understand the existing baseline traffic levels within the Study Area.
- 9.3.26 Traffic levels were recorded using Automatic Traffic Counters (ATCs), which record traffic data over a continuous 24-hour period for seven consecutive days and include traffic flows, speeds and vehicle classification.
- 9.3.27 The traffic surveys were undertaken in a 'traffic neutral' month and outside of any school holiday periods, in accordance with DfT's Transport Analysis Guidance (TAG) Unit M1.2 (Ref 9-4, 2020).
- 9.3.28 A summary of the baseline traffic flows is provided within Appendix 9-4 with an overview of the locations at Figure 9-1.
- 9.3.29 The IEMA EATM Guidance identifies two broad rules which could be used as a scoping process to determine the scale and extent of assessment. These rules are summarised as follows:
- Rule 1 - include highway links where traffic flows will increase by more than 30% (or the number of heavy goods vehicles (HGVs) will increase by more than 30%); and
 - Rule 2 - include any other specifically sensitive areas where traffic flows may increase by 10% or more (or there is a significant change in the mix of vehicles, such as an increase of more than 10% in the number of HGVs).
- 9.3.30 With respect to the need for peak hour assessments, whilst there is no guidance set by IoACC, reference is made to the DfT 'Guidance on Transport Assessment (2007) which refers to a threshold of 30 two-way trips during a peak hour to warrant the need to undertake junction capacity assessments. It is not considered

that the level of trip generation for the Project during the AM and PM peak hours will be significant enough to warrant detailed junction capacity assessment based on these thresholds.

- 9.3.31 The following sub-sections set out the IEMA EATM screening thresholds for determining the need for detailed assessment:
- 9.3.32 **Severance** is defined as the "perceived division that can occur within a community when it becomes separated by a major traffic artery". In addition, the assessment will consider any effects from traffic flow changes, as well as effects from formal diversions or closures required for network or infrastructure upgrades.
- 9.3.33 **Driver Delay** is defined as any delay which may occur to motorists. The IEMA EATM Guidance states that any delays due to a project are only likely to be significant when the network is close to or already at capacity. The IEMA EATM Guidance goes onto state "*The assessment of driver delay will normally be based on technical work reported within the Transport Assessment, which generally focuses on conditions in the network peak periods, with highway mitigation defined to ensure conditions within the development are not materially worse than would otherwise have been the case without the development and mitigation.*"
- 9.3.34 **Pedestrian Delay** is utilised as a proxy for other NMU delay when crossing a road. In the IEMA EATM Guidance, it is stated "Given the range of local factors and conditions that can influence pedestrian and non-motorised user delay (e.g. a discrete delay may have a lesser impact in an urban environment than a rural setting), it is not considered wise to set down definitive thresholds. Instead it is recommended that the competent traffic and movement expert use their judgement to determine whether pedestrian delay constitutes a significant effect."
- 9.3.35 **Non-motorised User Amenity** is defined as "the relative pleasantness of a journey and is considered to be affected by traffic flow, traffic composition and pavement width/separation from traffic". The guidance suggests that a tentative threshold for judging the significance of changes in NMU amenity would be where the traffic flow is halved or doubled which would lead to a high impact, although that any assessment should pay full regard to the local conditions.

9.3.36 **Fear and Intimidation** is defined as “a further environmental impact that affects people is the fear and intimidation created by all moving objects. While the traffic and movement assessment has to consider motorcycles, cars, lorries and buses, this scope of consideration is not exclusive – it also has to consider other modes of travel, including horses, cycles, mobility scooters, e-scooters and e-cycles, if appropriate”. For the assessment of Fear and Intimidation, the IEMA guidance refers to an assessment of the 'degree of hazard' but acknowledges professional judgement should be used with reference to local conditions.

9.3.37 The guidance also notes "The movement of hazardous/large loads will heighten people’s perception of fear and intimidation and, if this is likely to occur, it should be noted."

9.3.38 **Road Safety** refers to the use of collision rates and identification of collision clusters to assess the implications of a development. The IEMA guidance recommends consultation with local highway authorities to determine the significance of any Road Safety effects.

Assessment Study Area

9.3.39 As noted in Paragraph 9.2.1, the Study Area utilised for the PEIR assessment has been defined as the routes from the SRN via the LRN required to facilitate traffic movements associated with the construction, and decommissioning phases of the Project, as well as any improvements or changes required to facilitate construction traffic access.

9.3.40 The Study Area is illustrated in Figure 9-1.

Assessment Scenarios

9.3.41 The following scenarios form the basis of the preliminary assessment:

- Peak Construction Year (2027 with Project traffic), with Annual Average Daily Total (AADT) flows assessed against:
 - Baseline (2023) AADT flows; and
 - Future baseline Peak Construction Year (2027 without Project traffic) AADT flows.

Determining Significance of Effect

Receptor Sensitivity / Importance / Value

- 9.3.42 Categories of receptor sensitivity have been defined based on the principles set out in the IEMA EATM Guidance and include the following:
- Particular groups or locations which may be sensitive to changes in traffic conditions
 - The list of affected groups and special interests set out in the guidance
 - The identification of links or locations where it is felt that specific environmental problems may occur noting that such locations "...would include accident black spots, conservation areas, hospitals, links with high pedestrian flows etc."
- 9.3.43 In accordance with the IEMA EATM Guidance, the following sensitive receptors are considered within the preliminary assessment:
- NMUs
 - PRow users
 - Motorists and freight vehicles
 - Public transport users
 - Emergency services
- 9.3.44 Any nearby Sites of Special Scientific Interest (SSSI) and Local Wildlife Sites (LWS) are also identified as sensitive receptors, as these could be located alongside the proposed construction routes and be impacted by construction vehicles or any highway works required to facilitate the Project
- 9.3.45 For the purpose of the preliminary assessment with respect to Transport and Access, it is assumed that 'High Sensitivity' refers to any receptors who are non-motorised or vulnerable road users, such as children, elderly people or disabled people who could be negatively impacted by a change in traffic flows. For example, a change in HGV composition may significantly impact these users more than other motorised road users.
- 9.3.46 The key receptors identified to be incorporated within the preliminary assessment can therefore be categorised into the following key groups:

- NMUs, including vulnerable road users such as children, elderly and disabled people - categorised as High Sensitivity; and
- Drivers and other users of the LRN - categorised as Low Sensitivity.

Magnitude of Change

9.3.47 To determine the magnitude of change experienced by the receptors and to determine the likely significance of the effects resulting from the Project, thresholds set out in the IEMA EATM have been used and interpreted using professional judgement and industry good practice. The thresholds used for determining the magnitude of change are summarised below.

Severance

9.3.48 The IEMA EATM Guidance suggest that changes in traffic flow of 30%, 60% and 90% are regarded as 'slight', 'moderate' and 'substantial' changes in Severance respectively.

Driver Delay

9.3.49 The IEMA EATM Guidance states that vehicle delays are only likely to be significant when the traffic surrounding the site is already at, or close to, maximum capacity of the system, with junction capacity assessments being the most appropriate way to determine whether the Project would result in a significant change in driver delay.

9.3.50 Whilst no localised capacity assessments have been undertaken within the PEIR, it is considered that the majority of vehicle trips associated with the Project would take place outside of the typical network peak hours (assumed as 08:00-09:00 and 17:00-18:00) and therefore would not meet the former DfT threshold of 30 two-way vehicles during a peak hour noted earlier in this PEIR to require localised capacity assessments.

9.3.51 There may be exceptional circumstances or emergencies when it is not possible to avoid the peak hours though this would be ad-hoc only and likely below the threshold of 30 two-way vehicles.

9.3.52 In the absence of any localised capacity assessment, a threshold of 10% uplift in AADT on links has been identified, as this is recognised within the IEMA EATM as the typical level of daily traffic fluctuation.

Pedestrian Delay

- 9.3.53 Due to the lack of pedestrian infrastructure on routes within the Study Area, it is proposed that professional judgement is used to assess the impact of the Project on Pedestrian Delay. Total vehicle AADT uplift based on IEMA EATM thresholds will be used to determine the impact of the Project on each link, with an assessment undertaken of the implications this uplift would have on any assumed pedestrian demand.
- 9.3.54 Pedestrian demand will be assumed based on the characteristics of each link and the likelihood that it will be utilised by pedestrians. This has been established based on nearby amenities and land uses that could reasonably be reached by walking, as well as the provision of facilities for pedestrians to utilise.

Non-Motorised User Amenity

- 9.3.55 The IEMA EATM Guidance suggests that a tentative threshold for judging significance of changes in NMU amenity would be where traffic flow is halved or doubled which would lead to high impact. A change of less than a quarter would represent low impact and a change by more than a quarter would represent medium impact.
- 9.3.56 Any changes then need to be considered with respect to the likely demand for NMUs along these links to determine the magnitude of change.
- 9.3.57 This demand has been established based on assumptions as to the likely NMU destinations and land uses that could be reached via these links, as well as the provision for NMUs along these links.

Fear and Intimidation

- 9.3.58 A weighting system has been defined within the updated IEMA EATM guidelines, in order to assess the impact of the Project on Fear and Intimidation.
- 9.3.59 The degree of hazard (DoH) is assessed with reference to specific thresholds that reflect the characteristics of each link, including total vehicle flows, HGV flows and speeds, with an overall DoH 'score' provided for each combination of characteristics.

9.3.60 Table 9-1 provides the DoH scoring system that has been applied to the impact of the Project.

Table 9-1 Fear and Intimidation - Degree of Hazard Scoring

Average traffic flow over 18-hour day - all vehicles/hour 2-way (a)	Total 18-hour heavy vehicle flows (b)	Average vehicle speed (c)	Degree of hazard score
+1,800	+3,000	>40	30
1,200 - 1,800	2,000 - 3,000	30 - 40	20
600 - 1,200	1,000 - 2,000	20 - 30	10
<600	<1,000	<20	0

9.3.61 The total score from the three elements provided in Table 9-1 is combined to provide a level of Fear and Intimidation, as set out in Table 9-2.

Table 9-2 Levels of Fear and Intimidation

Level of Fear and Intimidation	Total Hazard Score (a) + (b) + (c)
Extreme	71+
Great	41 - 70
Moderate	21 - 40
Small	0 - 20

9.3.62 The magnitude of impact is assigned with reference to the changes in the level of Fear and Intimidation from baseline conditions, as set out in Table 9-3.

Table 9-3 Levels of Fear and Intimidation

Magnitude of Impact	Changes in step-traffic flows (AADT) from baseline conditions
High	Two step changes in level
Medium	One step change in level, but with <ul style="list-style-type: none"> • >400 vehicle increase in average 18hr two-way all vehicle flow; and/or • >500 heavy vehicle increase in total 18hr flow
Low	One step change in level, but with:

Magnitude of Impact	Changes in step-traffic flows (AADT) from baseline conditions
	<ul style="list-style-type: none"> <400 vehicle increase in average 18hr two-way all vehicle flow; and/or <500 heavy vehicle increase in total 18hr flow
Negligible	No change in step changes

Accidents and Road Safety

9.3.63 A detailed assessment of Accidents and Road Safety will be carried out within the TA for the DCO submission through examination of road traffic collision data for the most recently available three year period. For the PEIR, an initial review has been undertaken using the online Crashmap database.

9.3.64 The IEMA EATM states that professional judgement should be applied to assess the implications and magnitude of local circumstances and any existing collision clusters that could potentially be exacerbated by the additional traffic flows associated with the construction phase of the Project.

Significance of Effect

9.3.65 Table 9-4 sets out the significance criteria, with a description for each.

Table 9-4 Significance Criteria

Significance Criteria	Description of Criteria
Major Beneficial	A considerable positive effect to the receptor which is of a scale that has more than local importance
Moderate Beneficial	A positive effect on the receptor in terms of extent, duration, or magnitude
Minor Beneficial	A positive effect on the receptor that is small, localised, or short term
Neutral / Not Significant	No perceivable impact
Minor Adverse	A negative effect on the receptor that is small, localised, or short term
Moderate Adverse	A negative effect on the receptor in terms of extent, duration, or magnitude

Significance Criteria	Description of Criteria
Major Adverse	A negative effect on the receptor that will have an impact on the wider area or that may be in breach in standards or legislation

9.3.66 The predicted significance of the effect is determined through a standard method of assessment and based on professional judgement, considering both the sensitivity of the receptor and the magnitude of the potential effect, as shown in Table 9-5. Effects of moderate significance or greater are considered significant in terms of the EIA Regulations.

Table 9-5 Significance of Effect Matrix

Magnitude of Change	Sensitivity of Receptor		
	High	Medium	Low
High	Major	Major	Minor
Medium	Major	Moderate	Minor
Small	Moderate	Minor	Negligible
Negligible	Negligible	Negligible	Negligible

9.3.67 The IEMA EATM guidelines allow for the use of professional judgement in determining whether an effect is significant.

9.3.68 For the assessment of the likely significant environmental effects associated with Transport and Access, only effects that are assessed as 'Major' and 'Moderate' are considered significant in EIA terms.

9.3.69 This is based on professional judgment and that the Transport and Access effects of the Project will primarily be limited to the construction phase, so any effects are inherently temporary in nature.

Engagement and Consultation

9.3.70 To date, engagement has taken place with the IoACC, who act as the Local Planning Authority and Local Highway Authority, and the PINS. A summary of the engagement with IoACC and PINS that has informed the scope of the Transport and Access assessment of the Project is included at Appendix 9-2.

9.3.71 Further consultation will take place with key stakeholders throughout the design process of the Project prior to submission of the DCO application.

Assumptions and Limitations

9.3.72 For the purposes of this PEIR and in order to assess a worst-case, the peak construction vehicle movements for the Project is estimated to be 286 two-way movements per day, comprising 191 LGVs and 95 HGVs, which would capture both staff trips and deliveries. This is based on the likely construction requirements for the Project assuming all components are constructed in one phase.

9.3.73 Access to the Project during the construction phase has been identified via two primary routes, as set out below:

- Route 1 - Northern Route: Access to / from the north, via Britannia Bridge - A5025 - B5111 - Unclassified Road towards Penbol - Rhosgoch
- Route 2 - Southern Route: Access to / from the south, via Britannia Bridge - A55 - Junction 6 of the A5 - Holyhead Road - B4422 - B5109 - Lon Sardis - NCR5

9.3.74 Both Route 1 and Route 2 from Britannia Bridge in the east may also be needed for AIL deliveries.

9.3.75 As well as the routes identified above, two additional routes have been identified for AILs, both of which would originate from the Holyhead Port, west of the Project. These additional AIL routes are set out below:

- AIL Northern Route: via the A55 - A5153 - A5025 - Pig Y RhosL
- AIL Southern Route: via the A55 - Junction 5 - B5112 - B5111

9.3.76 Appendix 9-3 includes a Technical Note detailing the assumptions underpinning the trip generation and distribution to the various parts of the Project.

9.3.77 A future year assessment of 2027 has been undertaken as this is expected to be the year when construction commences following enabling works in Q4 2026. Growth factors have been extracted from the DfT's Trip End Model Presentation Programme (TEMPro), in order to uplift the baseline flows to the 2027 construction year.

9.3.78 With respect to the decommissioning phase, the effects are considered to be of a lesser magnitude than the effects generated during the construction phase. However, there is a degree of uncertainty regarding the decommissioning as engineering approaches and technologies evolve over the operational life of the Project, meaning that future traffic flows cannot be accurately fixed to a future point in time. Therefore, it is considered that the peak construction represents a worst-case for the decommissioning phase for the purposes of the PEIR assessment.

9.4 Embedded Mitigation

9.4.1 The embedded mitigation measures that have been integrated into the design of the Project relevant to Transport and Access are as follows:

- **Construction Access Routes:** the routes to the Project have been identified through a review of the LRN to identify suitable locations in highway safety terms, including being sufficient to accommodate HGVs and the provision of appropriate visibility splays. The use of existing access points onto the LRN has been prioritised to minimise the environmental impacts associated with the creation of new points of vehicular access, such as the removal of hedgerows. Where there is not a reasonable access location within the vicinity of the relevant area of the Project, a new vehicle access is proposed that complies with all relevant highway safety requirements. Further details on the individual access points will be provided within the TA that will support the ES.
- **Compound Location and Consolidation:** Use of Construction Compounds for the respective areas of the Project (Maen Hir North, Maen Hir Central, Maen Hir South) and deliveries to allow direct access to the Project and reduce the need to larger deliveries to impact the LRN. From the compounds, deliveries will be distributed out via smaller, local vehicles to the area of works where possible.
- **Internal routing:** internal access routes will be provided within the Project to minimise vehicles needing to use the LRN where possible.

- Highway improvements within the PEIR Boundary: permanent improvements will be made to assist with the movement of vehicles within the PEIR Boundary, which will be outlined in the TA and ES that will support the DCO Application.
- Staff Shuttle: The Project will seek to employ the use of a shuttle bus service for staff who will park within the relevant construction compound which will contain a designated parking area, to remove staff trips from the LRN. The shuttle will then transfer staff to the relevant area of construction across the Project, which will be subject to phasing of the construction works. Further details of the shuttle bus service will be provided within the ES and will be secured via a requirement, with further details to be provided prior to commencement of the construction phase.

9.4.2 In addition, the following outline management plans will be prepared in support of the DCO Application.

Outline Construction Traffic Management Plan

9.4.3 A draft Outline Construction Traffic Management Plan (oCTMP) has been prepared in support of the PEIR which sets out the management, mitigation and monitoring strategy for construction traffic for the Project. The oCTMP will form a 'live' document, being updated as necessary with contractor input to set out the strategy to manage construction vehicle access to the Project.

9.4.4 A final CTMP (to be in substantially in accordance with the outline) will be secured via requirement under the DCO and approved by the Local Planning Authority prior to commencement of the construction phase of the Project and will include details on the following:

- Required access routes from the LRN;
- Project entry and exit points, including compound locations; and
- Measures to mitigate the impact of construction vehicles.

Outline Travel Plan

9.4.5 An outline Travel Plan (oTP) will be prepared and submitted with the DCO application. The oTP will set out the strategy to reduce the vehicular impact of

construction staff trips on the highway network, by encouraging the use of sustainable modes, where appropriate.

9.4.6 The oTP will include details on the measures such as the staff shuttle bus service, provision of any staff parking facilities, as well as the other proposed measures to be implemented to encourage mode shift away from private car use.

9.4.7 A final Travel Plan (to be in accordance with the outline) will be secured via a requirement and the final details will be approved by the Local Planning Authority, prior to the commencement of the construction phase.

Decommissioning Traffic Management Plan

9.4.8 It is also expected that a Decommissioning Traffic Management Plan (DTMP) will be secured via a requirement and provided once details on the decommissioning phase are available, which will focus on the traffic impacts and traffic management measures to be associated with the decommissioning phase. The DTMP will be agreed with Local Highway Authority prior to the commencement of the decommissioning phase.

Outline Travel Plan

9.4.9 An outline Travel Plan (oTP) will be prepared and submitted with the DCO application. The oTP will set out the strategy to reduce the vehicular impact of construction staff trips on the highway network, by encouraging the use of sustainable modes, where appropriate.

9.4.10 The oTP will include details on the measures such as the staff shuttle bus service, provision of any staff parking facilities, as well as the other proposed measures to be implemented to encourage mode shift away from private car use.

9.4.11 A final Travel Plan (to be in accordance with the outline) will be secured via a requirement and the final details will be approved by the Local Planning Authority, prior to the commencement of the construction phase.

Outline Construction Environmental Management Plan

9.4.12 An Outline Construction Environmental Management Plan (oCEMP) will be provided in support of the DCO Application. The oCEMP will focus on the wider

environmental management and mitigation measures, rather than focusing solely on traffic. The oCEMP will address the potential for any in-combination effects.

9.4.13 The oCEMP will form a 'live' document, being updated as necessary with contractor input to set out the strategy to manage construction the likely significant environmental effects of the Project.

9.4.14 A final CEMP (to be in substantially in accordance with the outline) will be secured via a requirement and will be approved by the Local Planning Authority, prior to the commencement of the construction phase.

Outline Operational Environmental Management Plan

9.4.15 An Outline Operational Environmental Management Plan (oOEMP) will be submitted with DCO Application. The oCEMP will focus on the maintenance aspects of the Project, including the ongoing maintenance and replacement of kit and equipment during the lifespan of the Project.

9.4.16 A final oOEMP (to be in substantially in accordance with the outline) will be secured via a requirement and will be approved by the Local Planning Authority, prior to operation of the Project.

Decommissioning Environmental Management Plan

9.4.17 In advance of the DTMP being prepared and to set out the principles as to how the decommissioning phase will initially be mitigated and managed, an Outline Decommissioning Environmental Management Plan (oDEMP) will be submitted with the DCO Application.

9.5 Preliminary Assessment of Likely Significant Effects

Construction and Decommissioning

9.5.1 This section describes the likely significant environmental effects of the Project on Transport and Access during the construction and decommissioning of the Project. Likely effects related to Transport and Access during construction of the Project represent the worst-case scenario for decommissioning. As such, construction and decommissioning are assessed together.

9.5.2 Appendix 9-5 sets out the percentage increase of construction traffic associated with the Project across all links within the Study Area in the future baseline year

of 2027, as the anticipated year of peak construction. The links referred to within this section are as shown on Figure 9-1.

9.5.3 A summary of the likely significant effects associated with Transport and Access is provided at Appendix 9-6, with an overview of the assessment of each effect provided below.

9.5.4 Appendix 9-6 also refers to the 'level of certainty' for the conclusion of each assessment and how likely this is to be consistent with the eventual ES and DCO submission.

Severance

9.5.5 NMUs crossing the highway network are high sensitivity receptors. The construction phase of the Project would lead to a local, temporary, medium term and negligible magnitude of change on the severance of NMUs of the LRN and PRoW network, with an increase of less than 30% of the AADT on all links within the Study Area, with the exception of links 7 (Ty-Coch) and 23 (Bodewryd), which would experience a respective 30% and 37% increase in total vehicle AADT.

9.5.6 There could potentially be changes to the severance of NMUs of the SRN through temporary road closures or temporary traffic management for the Project. However, any changes would be temporary in nature and mitigated through appropriate signage and road diversions in accordance with the CTMP that would be secured by way of requirement under the DCO.

9.5.7 There would be no permanent closures or diversions in relation to the PRoW network. However, temporary closures and / or diversions may be required. Details of any closures and diversions impacting the PRoW network will be set out within the oCEMP and oCTMP, as well as being shown on the Traffic Regulation Measures Plans that will accompany the DCO submission.

9.5.8 On that basis, the effects on severance on NMUs are considered to be negligible adverse and not significant.

Driver Delay

9.5.9 Whilst no localised capacity assessments have been undertaken for the PEIR, the majority of vehicle trips associated with the Project would take place outside of

the typical network peak hours (assumed as 08:00-09:00 and 17:00-18:00), with the exception of any emergencies or exceptional circumstances, and therefore would not meet the former DfT threshold of 30 two-way vehicles during a peak hour noted earlier in this PEIR to require localised capacity assessments.

- 9.5.10 Based on the assessment included at Appendix 9-5, the AADT uplift across the majority of links does not exceed 10%, a threshold recognised within the IEMA EATM Guidance as the typical level of daily traffic fluctuation. Across all other links where the uplift in AADT exceeds 10%, it still does not exceed 30% which would lead to a negligible adverse magnitude of change.
- 9.5.11 Links 7 (Ty-Coch) and 23 (Bodewryd) would experience a 30% and 37% increase, respectively, representing a low/small magnitude of change.
- 9.5.12 Taking the above into consideration, it is considered that the Project would lead to a local, temporary, medium term and negligible adverse effect on driver delay which is not significant.

Pedestrian Delay

- 9.5.13 Across the majority of the Study Area, the construction phase of the Project will lead to less than a 10% increase in AADT which is considered to fall within the typical levels of daily traffic fluctuations and be not significant.
- 9.5.14 Across links 7, 8, 10, 11, 13, 14, 15 and 33, there will be an increase in total vehicle AADT of between 10% and 30%. This is considered to be a negligible magnitude of change.
- 9.5.15 There may be changes in pedestrian delay to NMUs of the local highway network through temporary road closures or temporary traffic management to facilitate works within the PEIR Boundary. Further details will be provided in the Traffic Regulation Measures Plans and oCTMP with the DCO submission. However, any changes would be temporary in nature and mitigated through appropriate signage and alternative provisions for NMUs being made.
- 9.5.16 As a result, the effects of the construction phase of the Project would lead to a local, temporary, medium term and negligible adverse effect on NMU delay which is not significant.

Non-Motorised User Amenity

- 9.5.17 In relation to total vehicles, only links 7, 10, 23 and 33 exceed the quarter increase set out within the IEMA guidance.
- 9.5.18 With respect to HGVs, the construction phase of the Project would lead to an increase above a quarter of the baseline flow on links 7, 10, 11, 13, 14, 15, 16, 23, 33 and 34 within the Study Area.
- 9.5.19 In particular, links 23 (Bodewryd) and 33 (Tref Alaw) are subject to percentage uplifts in HGVs of over 100% (doubling of HGV flow), indicating a large magnitude of change. However, all these links are considered to be of low sensitivity and not located close to any sensitive receptors, alongside relatively low baseline levels of HGV activity (<15 AADT) in comparison to the rest of the Study Area, which makes the percentage change appear more apparent when reviewed alongside the other links.
- 9.5.20 Whilst there may be some associated recreational use of these links by NMUs, it is likely that this would be on an ad-hoc basis, as well as being influenced by other factors such as time of year and weather. To inform this assumption, reference is made to the baseline flows included at Appendix 9-4 which includes data on the average number of cyclists using each link.
- 9.5.21 The baseline data highlights that even if assuming the total numbers of cyclists using both links 23 (Bodewryd) and 33 (Tref Alaw) are all recreational, this equates to on average one cyclist per day using each respective link. When applying professional judgement and assuming the usage would apply similarly to other NMUs, this would not indicate a high level of demand for recreational use.
- 9.5.22 As a result, the effects of the construction phase of the Project would lead to a local, temporary, medium term and negligible adverse effect on NMU Amenity which is not significant.

Fear and Intimidation

- 9.5.23 Due to the rural nature of the Project, the majority of the LRN does not benefit from any footway or dedicated cycleway provisions, meaning NMUs are not segregated from vehicular traffic.

- 9.5.24 However, the volume of NMUs using the LRN is also considered to be low based on the baseline flows presented at Appendix 9-4 which capture AADT cyclist flows - a trend which is assumed to apply similarly to other NMUs.
- 9.5.25 With respect to the IEMA EATM thresholds, the Project will not result in an uplift on any link greater than 150 total vehicles or 68 HGVs, falling below the 400 daily vehicle threshold for a 'step' change in Fear and Intimidation and resulting in a negligible adverse effect.
- 9.5.26 A DoH assessment has also been undertaken on the identified links, which assigns a DoH score based on vehicle flows and speeds. A DoH score was assigned to links in the 2027 Baseline scenario as well as the 2027 with Development scenario, to assess the impact of the Project.
- 9.5.27 In the 2027 Baseline scenario, links 2, 5, 18, 19, 22, 26, 27, 28, 35 and 37 possess a 'moderate' level of Fear and Intimidation, whilst all other links possess a 'small' level of Fear and Intimidation.
- 9.5.28 Link 36 (the A55) possesses a 'Great' level of Fear and Intimidation, due to its role as a major strategic route with high traffic levels and speeds of up to 70mph.
- 9.5.29 In the 2027 with Development scenario, the level of Fear and Intimidation on the assessed links would remain unchanged from the 2023 Baseline. The Project therefore does not pose an adverse impact upon Fear and Intimidation.
- 9.5.30 On this basis, the effect of the Project on Fear and Intimidation would be local, temporary, medium term and negligible adverse which is not significant.

Road Safety

- 9.5.31 The construction phase of the Project could have adverse, local, temporary and medium term impacts on Road Safety.
- 9.5.32 During engagement with IoACC, it was highlighted that the collision software used by IoACC is being updated and as a result it was not possible to extract any collision records. As part of the ES and supporting TA, a detailed review of the collision data along the access routes will be undertaken using the IoACC data.

- 9.5.33 The TA that will support the ES will also include a Stage 1 Road Safety Audit of any proposed highway works related to access or improvements within the PEIR Boundary which will inform the outcomes of this assessment.
- 9.5.34 At this initial stage and as agreed with IoACC, a review of the online database CrashMap has been undertaken over the latest three-year period to identify any collisions. It is considered that three years' worth of data is appropriate, as five years' worth of data would include years that were subjected to COVID-19 lockdowns and therefore not provide representative data. This approach has been agreed with IoACC during scoping discussions detailed at Appendix 9-2.
- 9.5.35 An initial review of collision data on CrashMap has identified that no junctions within the Study Area appear to have any collision cluster evident, identified as being five or more serious / fatal collisions over the three-year period.
- 9.5.36 It is also acknowledged that the routes within the Study Area that are to be used contain minimal NMU desire lines based on the surrounding land uses and are likely to be scarcely used by vulnerable road users, as identified in the baseline data included at Appendix 9-4 for cyclists which are assumed to reflect a similar profile to other NMUs.
- 9.5.37 Overall, the effect of the Project on Road Safety is therefore likely to be local, temporary, medium term and negligible adverse which is not significant.

9.6 Additional Mitigation

- 9.6.1 At this stage in the process, no mitigation in addition to the embedded mitigation set out in Section 9.4 is proposed for the PEIR.

9.7 Residual Effects

- 9.7.1 In the absence of any Additional Mitigation, the residual effects are the same as the Potential Effects presented in Section 9.5

9.8 Effect Interactions

- 9.8.1 Road traffic generated during construction of the Project has the potential to have adverse effects on receptors considered in other topic chapters or interact with the effects considered in those chapters.

- 9.8.2 The potential for adverse effects on ecological receptors is considered in Chapter 7: Ecology and Biodiversity which assesses air quality (e.g. nitrogen deposition) and noise disturbance.
- 9.8.3 The traffic data presented in this chapter has formed the basis of the assessment of noise and air quality effects considered in Chapter 10: Noise and Vibration and Chapter 15: Other Matters respectively. As such, these assessments inherently consider the traffic
- 9.8.4 Greenhouse gas emissions associated with road traffic and transportation have been taken into account in Chapter 14: Climate Change.
- 9.8.5 The human health effects associated with severance, fear and intimidation and road safety are considered in Section 9.5 of this chapter. Human health effects associated with air quality and noise generated by road traffic are considered in Chapter 17: Health.

9.9 References

- Ref 9-1 Environmental Assessment of Traffic and Movement (EATM) Guidance produced by the Institute of Environmental Management and Assessment ('IEMA', 2023).
- Ref 9-2 Department for Transport (2007). Guidance on Transport Assessment.
- Ref 9-3 Department for Transport (2023). National Transport Model – Trip End Model Presentation Program (TEMPro) Database.
- Ref 9-4 Department for Transport (2020). Transport Analysis Guidance (TAG) Unit M1.2.

